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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/622,625	07/18/2003	Klemens Kohlgruber	Bayer 10,253-WCG	2641

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NORRIS, MCLAUGHLIN & MARCUS, P.A.
875 THIRD AVE
18TH FLOOR
NEW YORK, NY 10022

EXAMINER

SORKIN, DAVID L

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 04/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/622,625

Applicant(s)

KOHLGRUBER ET AL.

Examiner

David L. Sorkin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 25 November 2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-10, 12, 14-18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Streiff et al. (US Re. 36, 969). Regarding claim 1, Strieff ('969) discloses a static mixer/heat exchanger comprising a housing (7) for a product (2) to pass through, a product inlet (47) and outlet (at other end of 7), at least two tubes (20) each of which is provide with a passage, the housing surrounding the tubes (see drawings), a multiplicity of fins (30) distributed over the circumference of the tubes, and arranged in at least two parallel layers along the tubes, wherein the fins are rotated through an angle of 45 to 135 degrees with respect to one another about the axis of the tubes, and wherein the fins are disposed at and angle of 10 to 80 degrees with respect to the direction (Z) to be taken by a product flowing through the housing from the inlet to the outlet through the housing (see col. 3, lines 1-5; col. 4, line 60 and drawings).

Regarding claim 2, for each fin, there is an opposite fin (see Figs. 1a, 1b, 2). Regarding claim 3, the fins belonging to successive layers are alternately arranges over the length of the tube (see Fig. 2). Regarding claims 4 and 20, the endpoint 45 degrees of the range 0-45 degrees (col. 4, line 60) corresponds to an offset angle of 90 degrees.

Regarding claim 5, a plurality of tubes having fins are arranged next to one another,

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transversely with respect to the direction to be taken (see Fig. 2). Regarding claim 6, the housing has feed lines (from 46) and discharge lines (21) which are respectively connected to inlets and outlets of the passages. Regarding claim 7, the tubes are provided with fins (30) and are arranged one behind the other in a plurality of planes (see drawings). Regarding claim 8, fins arranged on adjacent tubes overlap each other (see drawings). Regarding claim 9, the fins of successive layers are staggered with respect to one another along the tubes (see drawings). Regarding claim 10, the radial extent of the fins on a tube amounts to at least 0.5 times the internal diameter (see Figs. 8a, 8b). Regarding claim 12, some of the fins of the tubes are hollow, and the hollow space therein is in communication with the passage in the tube (see Fig. 8a).

Regarding claim 14, a catalyst is disclosed (see col. 1, line 34). Regarding claim 15, the tubes are arranged at an angle of at most ± 15 degrees in the housing, as seen in the transverse direction with respect to the overall flow direction (Z) through the housing from the product inlet to the outlet (see Fig. 8b). Regarding claim 16, differently dimensioned fins are disclosed (see 35 vs. 36 and Regarding claim 17, the mixer/heat exchanger has at least one substance introducing tube (one of 20), which is arranged parallel to the other tubes, is provided with fins (30) and has a plurality of openings (21) leading to the interior of the housing (see Figs. 8b, 10, 12). Regarding claim 18, the tubes have passages, in the outflow region of which a nozzle (21) of reduced diameter compared to the passages is fitted (see Figs. 8a and 8b).

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Streiff ('969) in view of Mentzer et al. (US 6,042,263). In the mixer/heat exchanger of Streiff ('969) discussed above with regard to claim 1, the inside wall of the tubes is not contoured. Mentzer ('263) teaches providing longitudinal ribs (12,14,16) to make the inside surface contoured to improve mixing. It would have been obvious to one of ordinary skill in the art to have provided the tubes of Streiff ('969) with longitudinal ribs at the inner surface to improve mixing as taught by Mentzer ('263) col. 2 lines 6-7.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Streiff ('969). In col. 1, lines 34-35 Streiff refers to a "subsequent catalyst". It would have been obvious to one of ordinary skill in the art to have provided electric heating to ensure temperature is sufficient for catalysis.

6. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Streiff ('969). Streiff ('969) discloses a method comprising passing substances through the mixer/heat exchanger discussed above with regard to claim 1. While it is not expressly stated that there is heat transfer through the tubes, the disclosure that the main flow through the housing is "flue gases" and the flow through the tubes is "ammonia" (see


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col. 4 lines 43-46) would have suggested a substantial temperature difference to one of ordinary skill in the art.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David L. Sorkin whose telephone number is 571-272-1148. The examiner can normally be reached on 9:00 -5:30 Mon.-Fri..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


David L. Sorkin
Primary Examiner
Art Unit 1723

DLS